

CLAIMS

What is claimed is:

- 1 1. A caching method, comprising:
2 caching first data received from a data source within a static cache as stable data,
3 the static cache having a fixed size;
4 evicting portions of the stable data within the static cache to a dynamic cache
5 when the static cache is full; and
6 enrolling the evicted portions of the stable data into the dynamic cache as soft
7 data, the dynamic cache having a dynamic size.
- 1 2. The caching method of claim 1, wherein the dynamic cache is dynamically
2 sized according to availability of memory.
- 1 3. The caching method of claim 2, wherein evicting the portions of the stable data
2 further comprises evicting the portions of the stable data to the dynamic cache according
3 to a Least Recently Used eviction policy.
- 1 4. The caching method of claim 2, further comprising:
2 evicting selectively at least some of the soft data from the dynamic cache when
3 the availability of the memory is scarce; and
4 contracting the dynamic cache to release some of the memory consumed by the
5 dynamic cache.

1 5. The caching method of claim 4, wherein evicting selectively the at least some
2 of the soft data further comprises evicting the at least some of the soft data according to a
3 Least Recently Used eviction policy.

1 6. The caching method of claim 4, wherein enrolling the evicted portions of the
2 stable data into the dynamic cache as soft data comprises caching the soft data as hash
3 values of a hash table, the hash values being indexed to keys for accessing the hash
4 values.

1 7. The caching method of claim 6, wherein evicting selectively at least some of
2 the soft data from the dynamic cache comprises:
3 copying at least some of the keys into a garbage queue, the at least some of the
4 keys corresponding to the at least some of the soft data; and
5 removing at least some of the hash values from the hash table based on the at least
6 some of the keys in the garbage queue.

1 8. The caching method of claim 7, wherein a Java Garbage Collector selectively
2 copies the at least some of the keys into the garbage queue.

1 9. The caching method of claim 2, further comprising:
2 intercepting a request for second data from the data source;

3 determining whether the second data is cached within either of the static cache
4 and dynamic cache; and
5 providing the second data from either of the static cache and the dynamic cache
6 instead of the data source, if the determining determines that the second data is cached.

1 10. The caching method of claim 9, further comprising moving the second data to
2 a most recently used position within the static cache, if the determining determines that
3 the second data is cached.

1 11. The caching method of claim 2, wherein the static cache and the dynamic
2 cache comprise a hybrid-cache within a single memory device.

1 12. The caching method of claim 2, wherein the stable data and the soft data
2 comprise objects of an object orientated language.

1 13. A machine-accessible medium that provides instructions that, if executed by a
2 machine, will cause the machine to perform operations comprising:

3 caching first data received from a data source into a hybrid-cache, the hybrid-
4 cache including a static cache having a fixed size and a dynamic cache having a dynamic
5 size;

6 enrolling the first data received from a data source into the static cache as stable
7 data;

8 evicting selective portions of the stable data within the static cache to the dynamic
9 cache when the static cache is full; and
10 enrolling the selective portions of the stable data evicted from the static cache into
11 the dynamic cache as soft data.

1 14. The machine-accessible medium of claim 13, wherein the dynamic cache is
2 dynamically sized according to availability of memory.

1 15. The machine-accessible medium of claim 14, further providing instructions
2 that, if executed by the machine, will cause the machine to perform further operations,
3 comprising:
4 expanding the dynamic cache to accommodate the selective portions of the stable
5 data evicted to the dynamic cache, if adequate memory is available; and
6 evicting at least some of the soft data from the dynamic cache to accommodate
7 the selective portions of the stable data evicted to the dynamic cache, if adequate memory
8 is not available.

1 16. The machine-accessible medium of claim 15, further providing instructions
2 that, if executed by the machine, will cause the machine to perform further operations,
3 comprising:
4 contracting the dynamic cache to release some of the memory consumed by the
5 dynamic cache, if the memory is scarce.

1 17. The machine-accessible medium of claim 15, wherein enrolling the selective
2 portions of the stable data evicted from the static cache into the dynamic cache as the soft
3 data comprises caching the soft data within the dynamic cache according to a canonical
4 mapping scheme.

1 18. The machine-accessible medium of claim 17, wherein caching the soft data
2 within the dynamic cache according to the canonical mapping scheme comprises caching
3 the soft data as a hash value of a hash table, the hash values being indexed to keys for
4 accessing the hash values.

1 19. The machine-accessible medium of claim 18, wherein evicting the at least
2 some of the soft data from the dynamic cache comprises:
3 copying at least some of the keys into a garbage queue, the at least some of the
4 keys corresponding to the at least some of the soft data; and
5 removing at least some of the hash values from the hash table based on the at least
6 some of the keys in the garbage queue.

1 20. The machine-accessible medium of claim 13, wherein evicting selective
2 portions of the stable data within the static cache comprises evicting the selective
3 portions of the stable data according to a Least Recently Used eviction policy.

1 21. The machine-accessible medium of claim 13, wherein the stable data and the
2 soft data comprise objects of an object orientated language.

1 22. A system, comprising:
2 a processor to process requests for first data from a data source; and
3 a memory device communicatively coupled to the processor, the memory device
4 to hold a hybrid-cache, the hybrid-cache comprising:
5 a static cache for caching the first data as stable data, the static cache
6 having a fixed size; and
7 a dynamic cache having a dynamic size according to availability of
8 memory within the memory device, wherein portions of the stable data within the static
9 cache are to be evicted to the dynamic cache as soft data when the static cache is full.

1 23. The system of claim 22, wherein the dynamic cache is to expand to
2 accommodate the portions of the stable data evicted to the dynamic cache when the static
3 cache is full, if adequate memory is available within the memory device.

1 24. The system of claim 23, wherein the dynamic cache is further to evict at least
2 some of the soft data from the dynamic cache to accommodate the portions of the stable
3 data evicted to the dynamic cache, if adequate memory is not available within the
4 memory device.

1 25. The system of claim 24, wherein the dynamic cache is further to contract to
2 release memory consumed by the dynamic cache, if other entities within the memory
3 device expand.

1 26. The system of claim 24, wherein the memory device comprises Random
2 Access Memory ("RAM") and wherein the data source comprises a data storage device
3 communicatively coupled to the processor, the hybrid-cache to reduce swapping to the
4 data storage device.

1 27. The system of claim 22, wherein the system comprises a caching server,
2 wherein the requests for the first data from the data source comprise requests from clients
3 of the caching server, and wherein the data source comprises an Internet.

1 28. The system of claim 22, wherein the system comprises an Application Server,
2 wherein the requests for the first data from the data source comprise requests from clients
3 of the Application Server, and wherein the data source comprises at least one database.

1 29. The system of claim 22, wherein the Application Server comprises one of a
2 Java based Application Server and a .NET based Application Server.

1 30. A system, comprising:
2 static means for caching stable data received from a data source within a fixed
3 amount of memory;
4 first means for selectively evicting portions of the stable data from the static
5 means when the static means is full;

6 dynamic means for caching soft data within a dynamically changing amount of
7 memory; and
8 means for enrolling the portions of the stable data evicted by the means for
9 evicting into the dynamic means as the soft data.

1 31. The system of claim 30, wherein the dynamic means is further for caching the
2 soft data within the dynamically changing amount of the memory based on an available
3 amount of the memory.

1 32. The system of claim 31, further comprising:
2 second means for evicting the soft data from the dynamic means when the
3 available amount of memory is scarce.

1 33. The system of claim 33, wherein the dynamic means is further for contracting
2 the dynamically changing amount of memory when the available amount of memory is
3 scarce.